Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-71 (canceled)

Claim 72 (currently amended): A method for controlling an engine to meet a power output requirement, comprising the steps of:

a)   allowing the engine to run in an unthrottled condition[[,]];

b)   receiving a signal describing [[a]]the power output requirement[[,]];

c)   varying [[the]]a gear ratio of a transmission connected between the mechanical output of the engine and a mechanical load[[,]]; and

d)   establishingto provide the engine with a load torque/speed characteristic having a torque equilibrium between the load andwith the engine at an engine total power output level [[of]] substantially equal to said power output requirement.

Claim 73 (currently amended): The method of claim 72 wherein said step of varying [[the]]a gear ratio of [[the]]a transmission compris[[ing]]es:

a)   meeting a power output requirement ofmaintaining a steady power output requirement by setting [[the]]a gear ratio of the transmission to provide a torque load to the engine that is equal and opposite to athe engine torque output of the engine;[[,]]

b)   meeting an increased power output requirement by increasing [[the]]a torque/speed gear ratio of the transmission[[,]]; or

c)   meeting an decreased power output requirement by decreasing [[the]]a torque/speed gear ratio of the transmission.

Claim 74 (currently amended): The method of claim 7[[3]]2 wherein said step of varying [[the]]a gear ratio of the transmission compris[[ing]]es changing the gear ratio one gear at a time.

Claim 75 (currently amended): The method of claim 7[[3]]2 wherein said step of varying [[the]]a gear ratio of the transmission may be varied by individual gears and by groups of gears, wherein said step of varying the gear ratio of a transmissioncompris[[ing]]es:

a) determining whether a large gear ratio change or a small gear ratio change is necessary, and in the event that a large gear ratio change is required, varying the gear ratio by a group of gears at a time, until not more than a small gear ratio change is necessary, and,

b) varying the gear ratio one gear at a time, until an equilibrium torque between the engine and the load on the engine, at substantially the power output requirement, is achieved.

Claim 76 (currently amended): The method of claim 75 additionally comprising the step of: comparing ain which the signal describing [[the]]a power output requirement signals whether the power output requirement is greater than or less than theto a power output of the engine power output, and wherein each application of the steps of varying the gear ratio by a group of gears at a time and varying the gear ratio one gear at a time additionally comprises the step of: is followed by a waiting for in which the engine is allowed to change speeds towards a new torque equilibrium to be established.

Claim 77 (cancelled).

Claim 78 (currently amended): The method of claim 7[[7]]2 wherein the step of varying [[the]]a gear ratio of the transmission additionally compris[[ing]]es the step of determining and setting the gear ratio to thea substantially exact ratio whereby the, to cause the load torque/speed characteristics, as reflected through the transmission, to come to an equilibrium is establishedwith the engine at substantially the power output requirement.

Claim 79 (currently amended): The method of claim 78 wherein the step of determining additionally compris[[ing]]es the step of using calculating or look-up techniques.

Claim 80 (currently amended): The method of claim 78 wherein [[the]]a torque/speed characteristic[[s]] of the engine [[are]]is substantially linear or approximates to a curve, and wherein the step of determining [[the]]a substantially exact comprises assugear ratio

assumes that the ~~engine's~~ torque/speed characteristics ~~are~~ is exactly linear or exactly ~~follow the approximate~~ matches a curve.

Claim 81 (currently amended): The method of claim 7[[8]]2 additionally comprising the step of connecting ~~wherein~~ an AC generator ~~is connected~~ to the transmission, for outputting AC power to an electrical load.

Claim 82 (currently amended): The method of claim 81 further comprising the step of providing an energy storage means and wherein said AC generator supplies electrical power to said energy storage means, and an electrical load draws the electrical power from said energy storage.

Claim 83 (original): The method of claim 81 wherein said electrical load comprising a fixed frequency electrical load with a steep current/voltage characteristic, and wherein said method further comprising the step of allowing the fixed frequency electrical load to draw current according to its voltage.

Claim 84 (currently amended): [[A]]The method of claim 81 additionally ~~for controlling the power output of an engine generator system,~~ comprising

a) ~~connecting an unthrottled engine to a generator having more than three different electrical phases,~~

~~b)~~ connecting [[the]]electrical phases of the generator to an inverter ~~electrical phases~~ with a mesh connection, and

~~c) determining or receiving a signal regarding a required system output~~

~~d~~b) determining [[the]]a generator current/voltage ratio at which [[the]]a torque/speed characteristic[[s]] of the generator would be in equilibrium with [[the]]a torque/speed characteristic[[s]] of the engine at substantially the required system power output, and

[[d]]c) implementing substantially that generator current/voltage ratio by using one or both of the following methods:

i) switching the mesh connection to have a different skip number (S), and

ii)   superimposing or substituting temporal harmonics to the fundamental waveform of the inverter phases.

Claim 85 (original): Apparatus for the control over the power output of an unthrottled engine, comprising

a)   a transmission, connected between a mechanical load and the unthrottled engine, comprising a variable gear ratio, and

b)   a control means, for controlling [[the]]a torque load on the engine, according to a changeable required power output, comprising

i)   means for determining the torque output of the unthrottled engine at the achievement of a required power output, and

ii)   means for setting the gear ratio of the transmission to produce a torque load on the engine substantially equal in magnitude to the torque output of the unthrottled engine at the achievement of a required power output, whereby the unthrottled engine will reach an equilibrium with the mechanical load at substantially the required power output.

Claim 86 (original): The apparatus of claim 85 wherein said transmission is a continuously variable transmission.

Claim 87 (original): The apparatus of claim 85 wherein the control means comprises means to determine and set the substantially exact gear ratio required to produce said required power output.

Claim 88 (original): The apparatus of claim 85 wherein said means for determining the torque output of the unthrottled engine at the achievement of a required power output comprising determining whether the torque output of the unthrottled engine at the achievement of a required power output is greater than or less than transient engine torque output, and wherein said means for setting the gear ratio of the transmission to produce a torque load on the engine substantially equal in magnitude to the torque output of the unthrottled engine at the achievement of a required power output comprising means to increase the torque/speed gear ratio when the required power

output is greater than transient engine power output, and to reduce the decreased torque/speed gear ratio when the required power output is less than transient engine power output.

Claim 89 (original): The apparatus of claim 85 wherein said mechanical load is a generator, connected to a battery.

Claim 90 (original): A high phase order electrical rotating generator comprising windings connected to inverter output terminals with a mesh connection, and a logic level controller comprising means to add harmonics to the AC drive waveform of the inverter output terminals in order to vary the ratio between inverter terminal output current and windings current, according to a requirement for the rotating machine to produce varying total electrical output, wherein the greater the increase in ratio of inverter terminal output current to winding current, the greater the subsequent generator electrical output.

Claim 91 (original): The high phase order electrical generator of claim 90, wherein said mesh connection may be changed with a mechanical switch.

Claim 92 (original): The high phase order electrical generator of claim 90 wherein the mesh connection is such that windings filling stator slots that are approximately, but not exactly, 120 physical degrees apart on the stator, are connected to one another, and to the same inverter output terminal, and wherein said logic level controller comprising means to provide AC drive waveform of varying degrees of third harmonic and fundamental current.

Claim 93 (original): The high phase order electrical generator of claim 90 further including an electrical energy storage medium connected to the output of said generator, and wherein said generator consisting of a motor/generator, having the characteristics of operating as a motor when winding currents are sufficiently low, and wherein said motor/generator able to source current from said energy storage medium in order to operate as a motor, and wherein said logic level controller able to respond to a requirement for greater total generator electrical output, with a sufficiently high increase of the ratio of inverter terminal output current to winding current, to temporarily cause the generator/motor to operate as a motor, whereby the generator/motor will tend to speed up in operation and the generator/motor electrical output to subsequently increase.